

# Importance Of Fashion Cad (Computer Aided Design) Study For Garment Industry In Bangladesh.....

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**Abstract:** The garment industry is rapidly growing with new concepts for keeping fashion business alive. To survive in the fashion industry new innovations are necessary for a while. In order to meet the demands for the market, a computer-aided design (CAD) system gives opportunity for mass customization in fashion. The system enables to create more styles, random changes, make new design, dimension of collection, pattern generation, graded size pattern, marker creation and fabric cutting. By integrating the system with the processes of garment sewing, test of fit and final adjustment, mass customization can be realized in the apparel industry. For the manufacturers, the efficiency of the supply chain can be improved by reducing human efforts, costs, and production time. For the customers, better fittings with faster delivery stimulate the desire of purchase and enhance their satisfaction. This paper illustrates that why Fashion CAD study is important for garment industry in Bangladesh.

**Keywords:** computer-aided design (CAD), new design, dimension collection, graded size pattern, marker creation, mass customization, Fashion CAD.

## 1 INTRODUCTION

Garment industry contributes a high percentage in the country's total revenue but still facing many Challenges (Varshneya and Paras, 2009). These days, customers have become more demanding and always looking for new styles and designs in the stores more frequently, which affects the turnaround time from concept to consumer. This is putting enormous pressure on the manufactures to do the same process in lesser lead time. Lead time has been shrinking a lot (Kumar, 2012). With the increasing competition and decentralized manufacturing garment industries are looking forward to the different software solutions to systematize the processes and to overcome their challenges (Varshneya and Paras, 2009). The garment manufacturing comprises of numerous stages such as order collection, product develop for taking approval from buyers, pre-production plan, spreading fabric, Cutting, sewing, finishing, packing and shipment to the vendor. Product development is the most critical of the garment manufacturing as if the garment is made correctly in terms of fit, style, color and design at this stage, half the battle is winning. Pattern making is the most critical of all the product development processes. A nice perfect fit contributes to the success of any style. Pattern making process has evolved as skilled technical art the years which requires a proper thoughtfulness (Anderson, 2005). Consequently fit Approval takes the major time of the lead-time. This industry is completely dependent on the skilled Pattern master (Varshneya and Paras, 2009). Buyers are placed at distant places and in most of the cases approval needs to be done by the buyer. So sending the samples to the buyer takes long time and then getting comments will take time and our First concern is time.

Secondly, if we receive any recommendation on that particular sample, pattern need to be corrected so doing the pattern all over again, making the revised sample and sending again for buyer's approval will add to the time. Moreover it involves cost as well. After every variation or correction pattern master has to make the pattern again and again to see the result which eventually adds to the time of final garment making. In today's fast changing fashion world, quick response is the main key factor to success. An agile automation system will permits industries to take action towards the changing market conditions. By accepting technology, industrialists can create examples for their competitors by cost cutting and increasing profits (Varukolu, 2007). Through software such as CAD, the pattern can be made easily and correction can be done as many times as required, fittings or virtual prototyping can be used to drape garment on model on the screen and animation helps to see fit and drape (Ondogan and Erdogan, 2006). The CAD system or Smart mark (automatic marker making) is much more productive compared to the manual method. They systems will provide great advantages in responding quickly to multi-piece, multi-size orders in small quantities. Moreover, these will provide substantial savings as far as fabric costs are concerned. Therefore, the objective of this study is to measure the amount of time saved using Pattern Making Software at different stages of product development as compared to manual pattern making method.

## 2 PROBLEM STATEMENT

CAD plays significant role in apparel and textile industry. CAD is one of the technologies being used in the fashion industry for mass customization; develop more design, frequent changing styles and production, making work easier through efficient and better quality of products. It is creating more job opportunity for the students. It has created more study opportunities for aspiring professionals specially fashion design students and CAD learners as well. In Bangladesh various institutions offered different types short and long time courses, which examine the importance of CAD knowledge for the industry in Bangladesh.

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### 3 OBJECTIVES

- To determine fashion CAD study to build a future career.
- To determine the importance of CAD in fashion design industry.
- To investigate the implications of graphic design software to the fashion industry
- To establish the relationship between the CAD study and its application to the fashion industry.

### 4 DIGITAL PATTERN MAKING

Extensively use CAD tools, to create a standardize set of patterns for each garment designs. Either - by using the blocks provided and modifying them on-screen or photographing an existing pattern with a good digital camera and on-screen digitizing pattern lines/shapes/curves over the top of the image pixel or creating free-form patterns on screen to required lengths. Digital Pattern and Marker Making on CAD, digitizing paper patterns can be seen in Figure 1 and pattern prints from plotter machine can be seen in Figure 2.



*Figure 1: Digitizer (Digitizing paper patterns)*



*Figure 2: Plotter Machine (Marker paper prints)*

### 5 ADVANCEMENT OF DIGITAL PATTERN MAKING

With the contribution of Fashion CAD, advancement in Pattern Making occurred in many areas which are described below:

#### 5.1 Reducing gap between Buyer/Designer and Pattern Maker

Product or sample development involves close relation between buyer or designer, merchandiser and pattern maker and fabric supplier. For the right product or sample development is important that there should be good communication between different departments but, in most of the cases designers are not in direct contact with the merchandiser or pattern maker, so merchandiser sends samples to designers or buyers for various approvals or expecting recommendation if necessary. It consumes most part of the lead time. This initiates the need of automation or advancement in product development so that lead time can be reduced. If software (CAD) is used for making patterns, creating different size set patterns and making makers can save time as so many repetitive tasks can be reduced. Pattern can directly send by email instead of courier or any other way and time can be saved. Approval can be done in short period of time or an hours instead of days or weeks. Also style can be simulated and virtual drape and fit of the garment can be seen and send to the designer or buyer for approval digitally. Again time can be saved in physically making of sample and sending it through courier.

#### 5.2 Costing

In the fashion industry important task is costing of fabric consumption for the particular order. Earlier merchandiser used to give design sheets to the pattern masters and get the patterns made, grading done and creates marker. This process normally used to take 3-4 days then also after taking so much time companies had to quote the price approximately. CAD has made overall process tremendously easy and faster as master, can made the pattern in lesser time or can also retrieve the similar pattern see the grading and marker of that style and quote the approximate pricing.

#### 5.3 Optimization Marker Making

Before the involvement of the CAD in to Pattern Making and Marker Making, masters used to take hours to do the marker planning. It was a critical job and was unable to use the fabric optimally. With the involvement of software, marker planning has become a few minutes job. Now as the time reduced so much, masters can work on many markers with less time and get the better efficiency than before. Furthermore, factories receive fabric in many widths. Fabric can be sorted out and different markers can be made for different group of fabric width and can increase their saving on fabrics, utilize the time increase more profits.

#### 5.4 Digital Method

- Technical sheets of particular garment were given to CAD Experts and they have asked to make the first.
- Main size pattern on CAD. Time was recorded for the same.
- The main size pattern updated to test fit and stitching details was given to the style .
- Mentioned detailing of name, style, stitch, allowances, drape and fabric etc. Time was recorded in doing the complete process.
- Fit has been checked of the virtual draped garments.
- Patterns were graded in different sizes by the CAD experts and time was recorded.
- File order was given for marker planning.

h. Marker planning was done and time recorded for the same.

## 6 Results

- a. The following results have been derived from the above analysis:-
- b. CAD is more favorable in quick changes any design and possible to use more application on garments.
- c. In pattern making of main size patterns, no significant difference has been found for the simple style patterns but as complexity of styles increases CAD method is more favorable. Also very much dependent on the personal skills and productivity in particular. CAD is favorable for the repetitive tasks or repeat order.
- d. Virtual sample making though CAD definitely saves time and it does not any tailor material etc. The virtual sample made by the CAD can be sent to the buyer by email where as physical sample needs to be sent through courier, which will again affect the time. The fabric saving and time saving in virtual sample add to much more profit. Also carbon foot prints can be reduced.
- e. Since grading different sizes patterns and making arrangements prior to marker making process demand manual needs more labor and time, it is only natural for the CAD systems to be advantageous in these all steps by reducing labor and time.
- f. During marker-making preparation and plotting procedures, again CAD method was found to be superior.
- g. In assessing the total times for all stages, the level of significance between the manual and digital way, CAD always favorable.

## 7 Conclusion

In pattern making, it is clear that in simple style patterns time difference in both Manual and CAD method is negligible but as the critical style of the patterns increases, the CAD is more beneficial in terms of labor and time saving. As we have seen that pattern can be made in less time by using CAD, which takes the significant time of sampling, so we can conclude that lead-times can be reduced by using CAD for pattern making in product development. Also with the advanced features of CAD software fancy design possibilities can be increased. Also, pattern storage used to be a big problem with the manual patterns and after a certain period of time you need to destroy the patterns due to space constraint and with so many patterns. It is difficult to find any pattern if receive any repeat order after long period of time. Making patterns on CAD has more benefit that large amount of data can be stored on the computers, can be regain easily and adaptations can be made at any time. CAD patterns can be easily sent to the buyers by email for their comments. It has been observed that acceptance for pattern making software has increased and many companies are dependent to do their first pattern in the CAD.

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